

SOIL SURVEY OF DODGE COUNTY, GEORGIA.

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LOCATION AND BOUNDARIES OF THE AREA.

Dodge County lies in the south-central part of the State of Georgia, and is bounded on the northwest by Pulaski County, on the northeast by Laurens and Montgomery counties, on the southeast by Montgomery and Telfair counties, and on the southwest by Wilcox and Pulaski counties. The county is comprised between $82^{\circ} 53' 33''$ and

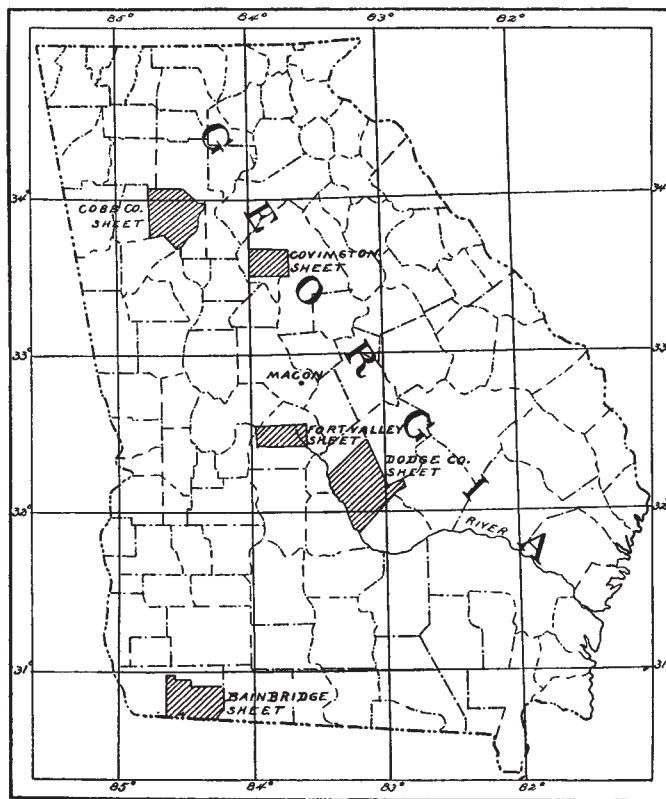


FIG. 8.—Sketch map showing location of the Dodge County area, Georgia.

$83^{\circ} 27' 27''$ west longitude and $31^{\circ} 54'$ and $32^{\circ} 26'$ north latitude. Eastman, the county seat, near the center of the county, is about 130 miles southeast of Atlanta. The county is roughly rectangular in shape, and has an area of 313,088 acres, or about 489 square miles.

During the latter part of the survey the writer was assisted in the field work by Messrs. Herbert W. Marean and W. E. McLendon.

HISTORY OF SETTLEMENT AND AGRICULTURAL DEVELOPMENT.

Dodge County was erected out of portions of Pulaski, Montgomery, and Telfair counties in 1871. These counties, together with Laurens, had a population of only 8,000 in 1810. The settlement of the country comprised in Dodge County was even slower than in other parts of this region, for as late as 1865 one could have driven from the present site of Eastman to Hawkinsville, a distance of 20 miles, without passing a single house.

The country consisted originally of extensive pine forests, broken only by swamps or the different vegetation of the sand areas. The entire uplands were covered with a good growth of wire grass, with scarcely any underbrush. This furnished good pasture, and the attention of the earliest settlers was turned to the raising of live stock—chiefly cattle and sheep. At one time this formed an important industry.

The Georgia Central branch of the Southern Railway was built through Dodge County in 1871, and soon afterwards lumber companies came into the region and bought or leased the timber rights to large tracts of land. The forests were rapidly removed, and twelve or fifteen years ago nearly all the merchantable timber had been cut. The turpentine industry also thrived for a while, and a small quantity is made in the county to-day.

Early in the seventies settlers began to come into the county from surrounding counties and from northern Georgia, and as the timber was removed the land open to cultivation was taken up. This diminished the area of pasture and caused the cattle industry to decline. More grain was grown at that time than now, though cotton has long been the important crop. Tobacco also was grown for home use, but its cultivation is now practically abandoned.

Under the constant cultivation of cotton, with little attention to manuring or to the rotation of crops, the natural productivity of the lands has declined and commercial fertilizers are used very generally.

The Wrightsville and Tennille Railroad and the Seaboard Air Line, laid about 1889, have been instrumental in building up the northern and southern parts of the county, but there are yet 80,000 acres of land which have never been under cultivation. Many settlers are at present coming into the county and establishing homes on this land, which is held at a low though advancing price.

The present population of the county is 13,975, the whites predominating.

CLIMATE.

The following table, compiled from the records of the Weather Bureau, shows the normal monthly and annual temperature and precipitation at the stations named. Hawkinsville is about 18 miles northwest of the center of Dodge County, and Dudley is about the same distance northeast.

Normal monthly and annual temperature and precipitation.

Month.	Hawkinsville.		Dudly.		Month.	Hawkinsville.		Dudly.	
	Temper- ature.	Precipi- tation.	Temper- ature.	Precipi- tation.		Temper- ature.	Precipi- tation.	Temper- ature.	Precipi- tation.
	° F.	Inches.	° F.	Inches.		° F.	Inches.	° F.	Inches.
January	45.9	4.33	47.3	3.23	August	78.9	6.55	81.4	5.03
February	47.1	5.89	48.3	5.28	September ..	74.7	3.17	77.3	3.55
March	56.8	6.12	58.8	4.74	October	66.1	3.57	67.0	3.86
April	64.7	2.35	64.3	3.94	November ..	53.8	2.53	56.9	4.01
May	71.0	2.44	75.3	2.51	December	46.6	3.48	48.1	4.21
June	77.9	5.30	82.8	3.13	Year	63.6	52.60	65.9	48.75
July	79.8	6.87	82.8	5.26					

The greatest precipitation occurs during February, March, and the summer months. The others have a fairly uniform distribution of rainfall, ranging from 2.35 inches to 4.21 inches. The maximum temperature in summer does not often exceed 100° F., and the minimum in winter rarely goes below 20° F. Occasionally, at night, the ground freezes to the depth of half an inch, but generally thaws during the day. Snow is seldom seen.

The average date of the last killing frost in spring is March 14, and of the first killing frost in fall November 11. This gives a growing season of 240 days. However, during the last eleven years there have been times when frost occurred as late as April 1, and as early as October 24. At times, though rarely, the fruit buds, started by unseasonably warm spring days, are subsequently damaged by late frost.

PHYSIOGRAPHY AND GEOLOGY.

In a general way the topography of Dodge County is that of a gently rolling plain, cut by sluggish streams with only moderate slopes along their courses. Ultimately the drainage of nearly the entire county flows into the Ocmulgee River, but in the northeastern part of the county the waters enter several good-sized tributaries before reaching the larger stream. The Little Ocmulgee River, or "Gum Swamp," as it is popularly known, passes through the county in a generally southeast direction, a few miles to the northeast of its center. Waltons Creek enters this stream some 6 miles north of Eastman. Sugar

Creek—a stream rising within the county—is only a few miles southwest of these streams, and flows in the same general direction. These three, with their tributaries, drain nearly all the central, northeastern, and southeastern parts of the county. All the streams, except the Ocmulgee River, are characterized by narrow bottoms entirely covered with water during most of the winter and other rainy seasons. In summer the streams dry up to such an extent that the current entirely ceases, and the stream course is marked only by pools. For a great part of their length on each side of the present bottoms wide, flat or very gently rolling areas of sand are seen. On the edge of these the land rises, usually gradually, but sometimes abruptly, from 30 to 60 feet.

A more or less prominent ridge separates the waters of Sugar Creek from those of the Little Ocmulgee River. The Southern Railway runs along the crest of this ridge, and Eastman, Chauncey, and Empire are situated thereon. Eastman is 361 feet and Chauncey 300 feet above sea level. Similar ridges frequently occur between the smaller streams. The crests of these ridges are covered with Norfolk sandy loam and the slopes with the Norfolk sand, and their location can be made out on the soil map from this circumstance.

To the southwest of Sugar Creek a divide, somewhat similar in character to the one just described, separates the waters which enter the Ocmulgee River from those which flow to the southeastward. This ridge is not so pronounced as the others, but is more like a gently rolling plain of higher land, with ridgelike outliers extending down between the streams. Beyond this the drainage is to the southwest. In some places at the edge of this divide, facing the river or its tributaries, even the smaller streams have cut V-shaped channels 40 to 60 feet deep, and some of the most hilly land in the county is seen here. Nearer the river the land becomes gently rolling again, with shallow stream courses. A flat, low-lying deposit of sand, similar to that found along the other streams, occurs near the river and the bordering bottom lands. In the vicinity of Rhine this flat land widens out up the creeks, and there is a slight rise near the river of 10 to 20 feet. The upland always meets the bottom land in a gentle slope, and even where it extends to the river bank in few places is it over 15 or 20 feet above the bottoms.

No geological survey of Dodge County has yet been made, so that the age of the formations can not be stated. The gray and yellow sands and sandy loams and yellow clays which constitute the upland soil types are usually 6 to 15 feet thick, underlain by a mottled gray and red sandy clay, which sometimes changes to a gravelly clay, and at other times becomes very sandy. In a few places this sandy phase has been consolidated into sandstone, probably by iron salts.

The red and gray clays are quite tenacious, and in wells stand in perpendicular walls without curbing.

Along one of the creeks from 3 to 5 miles southeast of Eastman a few outcrops of limestone are seen. For a distance of perhaps 2 miles this stream has eroded away the overlying material and cut its channel from 10 to 20 feet deep into the limestone rock. This formation undoubtedly underlies much of that part of the county, for many sink holes are found there. These range from 30 to 60 feet in diameter, and from 10 to 30 feet in depth. They occur on the tops of hills, on slopes, and in various positions, but most often near the stream. A few similar sink holes were seen in other parts of the county.

SOILS.

Three types of soil, exclusive of Meadow, were recognized in this county. The following table shows the area of each type:

Areas of different soils.

Soil.	Acres.	Per cent.
Norfolk sand.....	175,296	56.0
Norfolk sandy loam.....	105,792	33.7
Meadow.....	19,584	6.3
Norfolk coarse sand.....	12,416	4.0
Total.....	313,088

NORFOLK SANDY LOAM.

The Norfolk sandy loam consists of a light-brown or gray sandy loam or sand, from 6 to 10 inches deep, underlain by a yellower material of the same texture, beneath which, at from 12 to 24 inches, occurs a yellow loam or sandy clay. The average depth to the clay is about 16 inches. Over the surface of most of the type are scattered numerous rounded iron concretions from one-fourth to one-half inch in diameter, which give to this soil its popular name of "red pebble land." As a rule these concretions do not extend deeply into the subsoil. When the land is freshly plowed they are not conspicuous, but become so after rains have beaten down the surrounding soil. In extreme cases they almost cover the ground. On narrow divides some quartz gravel is also found on the surface of this type. Usually, however, as the stream course is approached both soil and subsoil become lighter in texture, the red pebbles disappear, and the type grades into the Norfolk sand.

This soil is locally known as "hard land," from its tendency to become compact when not stirred for some time. Except in the depressions, roads over this type are hard and smooth, with very few stretches of sand, and are easily distinguishable from those through the more sandy types of soil.

Certain red or gray clays underlying this type, usually at considerable depths, outcrop in a few places and give rise to a soil which is somewhat different from the Norfolk sandy loam, but owing to the small extent of such areas they were not mapped as a separate type.

The Norfolk sandy loam is found in all parts of the county, but its greatest relative development occurs northwest, west, and south of Eastman, in and around Chester, to the northwest and west of Milan, and in the western part of the county. This type covers nearly all the gently rolling uplands of the county, the more hilly slopes and the lower, flatter land near streams being covered with Norfolk sand. The most extensive areas are found on the divides. A few flat or gently sloping areas are seen near the Ocmulgee River.

Owing to its gently rolling surface and relatively high position, the Norfolk sandy loam is usually well drained, but occasionally open ditches are seen on the more level areas, and such are undoubtedly beneficial. The soil does not suffer from excessive drainage, as does the Norfolk sand, and it stands drought much better. It washes badly, and contour cultivation and terracing are practiced. All except the most level areas are likely to suffer serious damage from this tendency to wash.

The Norfolk sandy loam is derived from the yellow sandy clays already mentioned. The decay of the roots of the wire grass and accumulated pine needles has incorporated some organic matter in the first few inches of the soil, and cultivation has either increased or diminished this store, according to the care which has been used in handling the soil.

Originally this soil was covered with a heavy growth of longleaf pine, except near the Ocmulgee River, where shortleaf pine occurred. There was no underbrush, but a growth of wire grass. A larger relative proportion is at present under cultivation than of any other soil type in the county.

Short staple cotton and corn are the principal products grown on this type. Cotton, with careful cultivation, yields one-half bale and corn from 10 to 15 bushels per acre. Cowpeas, peanuts, and oats are also grown to some extent. One commercial peach orchard near Chester is partly located on this type. The greater part of the cultivated lands of Dodge County is of this soil, but considerable areas are yet found that have never been plowed. These are used chiefly as pasture and turpentine orchards.

The Norfolk sandy loam is well adapted to the production of peaches and other fruits. It is believed that it would prove a fair bright tobacco soil. Alfalfa has been grown successfully, and cowpeas and other forage crops do well, so that it is probable this would prove a good dairy soil. The manure which would be produced in the practice of dairying would be very beneficial if applied to the land. Sweet

potatoes, Irish potatoes, strawberries, and other truck crops can also be produced.

Where under cultivation the Norfolk sandy loam is valued at from \$10 to \$15 an acre.

The following table shows the texture of both soil and subsoil of this type:

Mechanical analyses of Norfolk sandy loam.

No.	Locality.	Description.	Gravel, 2 to 1 mm.	Coarse sand, 1 to 0.5 mm.	Medium sand, 0.5 to 0.25 mm.	Fine sand, 0.25 to 0.1 mm.	Very fine sand, 0.1 to 0.05 mm.	Silt, 0.05 to 0.005 mm.	Clay, 0.005 to 0.0001 mm.
			<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>
10746	7½ miles NE. of Rhine	Light sandy loam, 0 to 16 inches.	5.5	15.5	15.0	34.3	13.4	9.6	6.8
10744	6 miles W. of Dempsey	Light sandy loam, 0 to 16 inches.	5.8	16.9	15.0	30.1	14.2	9.0	8.9
10748	3 miles SE. of Eastman	Light sandy loam, 0 to 17 inches.	3.1	9.5	13.2	38.2	16.7	8.6	10.6
10747	Subsoil of 10746	Yellow sandy clay, 16 to 36 inches.	4.3	10.8	9.9	23.8	10.8	7.7	32.7
10745	Subsoil of 10744	Yellow sandy clay, 16 to 36 inches.	4.5	12.9	10.0	20.1	9.4	7.8	35.3
10749	Subsoil of 10748	Yellow sandy clay, 17 to 36 inches.	2.2	11.5	8.4	20.4	10.3	5.2	42.0

NORFOLK SAND.

In point of extent, at least, the Norfolk sand is the most important soil type in the county. It consists of a slightly loamy, grayish sand, medium to coarse in texture and from 4 to 10 inches deep, underlain by an incoherent yellow sand of similar texture, which extends to a depth varying from 30 inches to several feet. Before cultivation the line of demarcation between the soil and the subsoil is very distinct, occurring at the depth to which the roots of the wire grass have extended. A few years of cropping without the use of manures soon destroys this distinctiveness, and often almost entirely removes the organic matter, leaving only a very light gray, almost white sand for the surface soil, which gradually changes with depth to the typical yellow of the virgin land. This whiteness is very characteristic of the cultivated fields on much of this type.

In the more level areas a few small swampy places, locally known as "hammocks," from half an acre to 3 acres in extent, are seen. Immediately around these the sand is finer, and in the wettest parts the subsoil is a sticky sand. Aside from this the soil in most of the flatter areas is very uniform, and usually more than 3 feet deep. The sand on the slopes is somewhat more variable, in places containing some

fine sand and in others a relatively large amount of coarse sand and gravel. The areas of coarsest sand have been mapped as Norfolk coarse sand.

Southeast of Rhine there is an area of very flat, poorly drained land, through which Cypress Creek passes on its way to the river. The soil here contains a greater amount of organic matter than the typical Norfolk sand, and the subsoil has an admixture of yellow clay, while at 30 inches a sticky sand is found. Another phase is found in which the subsoil is red and contains an admixture of red clay. Small areas of this latter phase are found in several places along the river. Both these phases are somewhat more productive than the typical Norfolk sand, the red phase being more so than the other. On the flatter areas around the Little Ocmulgee River and other streams the native forest growth is scrub and post oak, with now and then some longleaf pine; on the red sandy phase it is shortleaf pine, but other areas have the longleaf pine. Wire grass grows on all the phases.

The Norfolk sand is found to a greater or less extent along all the streams in the county. Beginning near the center of the northwestern boundary line, a strip some 2 miles wide is found on the Little Ocmulgee River. This increases in width to 4 or 5 miles where Waltons Creek joins the river, about 7 miles north of Eastman, and maintains this width until near Godwinsville, where the sand areas bordering this creek and Sugar Creek nearly join, and then are almost continuous to the southeastern county line. Another large area is found on the tributaries of the Ocmulgee River, southwest and northwest of Rhine.

The Norfolk sand occurs both on the steeper hillsides and in flat areas near streams, and almost every stream is bordered by slopes of this type, sometimes with, but often without, intervening areas of Meadow. It is common to find the Norfolk sand on the hillsides grading into the heavier Norfolk sandy loam on the summits, but where the streams are very numerous, the Norfolk sand may extend from one to another entirely across the hills.

The texture of this soil is such that even on the flattest areas drainage is excessive, and plants suffer from lack of moisture. Most of the "hammocks" dry out during the summer, and even in winter a few rods from their margins the soil is as dry as anywhere. Owing to its position the flat area near Rhine is rather poorly drained, and can not be plowed early in the season, but crops are rarely injured from an excess of moisture during the growing season.

The Norfolk sand along the hillsides is composed of the coarser particles which have been left under conditions of greater erosion than has operated in areas where the Norfolk sandy loam occurs. Thus most of the clay and other finer particles as originally deposited have been removed and little but the sand left. The flatter areas have been

built up by stream action at some time subsequent to the uplift of the country, assisted to some extent by wash from surrounding types, and in such areas the proportion of fine material is slightly greater.

Cotton and corn are the chief crops. Cotton yields about one-third bale per acre on the red phase and one-sixth to one-fourth bale on the other areas. The yield of corn ranges from 8 to 12 bushels. A few watermelons are grown for local use and some have been shipped to outside markets. A large proportion of the area of this soil type—a greater proportion than in the case of the Norfolk sandy loam—is yet in a wild state and is valued chiefly for wire-grass pasture and for the available timber and turpentine.

The type is preeminently adapted to the growing of early truck, and it would seem that watermelons and cantaloupes should prove profitable. With better transportation facilities these and other truck crops will doubtless be the chief interests on this soil. The type now sells at from \$4 to \$10 an acre.

The following table shows the texture of both soil and subsoil of this type:

Mechanical analyses of Norfolk sand.

No.	Locality.	Description.	Gravel, 2 to 1 mm.	Coarse sand, 1 to 0.5 mm.	Medium sand, 0.5 to 0.25 mm.	Fine sand, 0.25 to 0.1 mm.	Very fine sand, 0.1 to 0.05 mm.	Silt, 0.05 to 0.005 mm.	Clay, 0.005 to 0.0001 mm.
10739	2 miles NW. of Rhine	Gray loamy sand, 0 to 10 inches.	<i>P. ct.</i> 6.9	<i>P. ct.</i> 22.7	<i>P. ct.</i> 16.5	<i>P. ct.</i> 27.7	<i>P. ct.</i> 13.8	<i>P. ct.</i> 9.0	<i>P. ct.</i> 3.4
10741	7 miles N. of Eastman ...	Medium to coarse sand, 0 to 36 inches.	9.1	19.9	14.1	30.0	15.2	7.3	4.2
10743	8 miles NE. of Rhine.....	Gray sand, 0 to 36 inches.	7.6	20.5	16.3	29.7	12.8	7.5	5.0
10740	Subsoil of 10739	Yellow loamy sand, 10 to 36 inches.	8.3	21.1	15.4	28.1	14.0	7.6	5.1

NORFOLK COARSE SAND.

The Norfolk coarse sand is a coarse, grayish sand, carrying from 2 to 5 per cent of rounded, light colored quartz gravel, from one-fourth to 1 inch in diameter. This material extends to a depth of from 24 to 36 inches, and is underlain by a yellowish gravelly clay, or gravelly, sticky sand. This soil is locally termed "white pebble land," from the color of the quartz pebbles. As compared with the Norfolk sand, the Norfolk coarse sand contains a higher proportion of fine gravel and the coarsest grades of sand. The native vegetation is longleaf pine and wire grass.

The largest areas of this soil type are found around the heads of some of the smaller streams which flow into the Ocmulgee River. Smaller areas are seen near Gresston and Empire, in the northwestern part of the county, while other scattered areas occur in the north-eastern part.

The Norfolk coarse sand is the most hilly soil in Dodge County, and much of the surface is greatly broken. No large streams cross it, but it is found on the edge of the divides, and the smaller streams have cut many V-shaped channels through it, from 30 to 60 feet deep, so that the areas are formed of a succession of hills and valleys. Around the heads of these streams the soil changes gradually into the Norfolk sandy loam, while toward the larger streams it passes into the Norfolk sand.

The Norfolk coarse sand is excessively drained, and crops suffer from lack of moisture. Owing to its porous nature, and the heavy character of the particles, it does not wash so severely as the other soils of the area.

Cotton and corn are the chief products grown on this type of soil. Cotton yields from one-sixth to one-fifth bale per acre, and corn in proportion. But a small part of the area of this soil is at present cultivated. It is adapted to much the same crops as the Norfolk sand, but gives smaller yields than that type.

The following table shows the texture of the fine earth of both soil and subsoil of this type:

Mechanical analyses of Norfolk coarse sand.

No.	Locality.	Description.	Gravel, 2 to 1 mm.	Coarse sand, 1 to 0.5 mm.	Medium sand, 0.5 to 0.25 mm.	Fine sand, 0.25 to 0.1 mm.	Very fine sand, 0.1 to 0.05 mm.	Silt, 0.05 to 0.005 mm.	Clay, 0.005 to 0.001 mm.
			P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.
10738	6 miles S. of Eastman....	Gray coarse sand, 0 to 36 inches.	11.1	24.8	17.2	28.9	9.6	5.9	2.6
10736	1½ miles SE. of Dubois	Gray coarse sand, 0 to 24 inches.	25.0	30.9	13.0	15.6	6.1	5.7	3.5
10737	Subsoil of 10736.....	Coarse gravelly clay, 24 to 36 inches.	24.7	25.3	9.0	8.1	2.9	4.3	25.3

MEADOW.

The term Meadow is used in this area to cover the bottom lands that are subject to overflow during winter and other rainy seasons, and which, unless artificially drained or diked, are for a great part of the year too wet to produce good crops. Such land is locally called "swamp."

There are three more or less distinct phases of Meadow in Dodge County. One consists of the narrow bottoms found along the smaller streams. Here the soil is a dark, sometimes mucky, sand 3 to 6 inches deep, underlain by gray sand, and this at varying depths by sticky yellowish sand. Such areas are covered with a thick growth of bay, gum, cypress, and other water-loving trees, with an undergrowth of bushes and cane. They rarely exceed half a mile in width, and the average width is about one-fourth mile. In the wider areas are found spots of clay, which may be only a few inches deep, or may extend without change to a depth of 3 or 4 feet. There are also a few shallow deposits of muck, which is sometimes used as manure on the lighter soils of the uplands.

The second and third phases are found on the bottoms along the Ocmulgee River. As is common with southern rivers, this one is characterized by an inner slough more or less well developed, with higher, dryer land near the river. In this sloughlike depression is found a soil which is somewhat distinct from that seen nearer the river, yet both are covered by the same character of vegetation. Here the soil is a dark-brown silty or very fine sandy loam, rich in organic matter, and underlain by a subsoil of yellow or drab silty clay, which sometimes becomes heavier in texture in lower depths. As the stream is approached the sand content increases in both soil and subsoil, and the organic matter decreases, so that near the stream is found a light-brown sandy or fine sandy loam underlain by yellowish sandy clay or clay loam. The whole of these two phases is covered with a thick growth of longleaf and shortleaf pine, gum, and cypress, with an impenetrable undergrowth of bushes and vines. The growth which particularly distinguishes these areas from all other soils in the county is the scrub palmetto.

The areas of Meadow are always nearly level, with the exception of those occupying the sloughs, and are of necessity poorly drained. It is impossible to produce crops on this type without first draining it, or in some cases, as along the Ocmulgee River, both diking and draining it.

The Meadow has resulted from stream deposition, assisted in some cases, in the narrower areas, by the wash from bordering slopes and uplands.

None of the Meadow is at present cultivated. The canebrakes are used to some extent for pasture, and sometimes the cane is cut. Some of the Ocmulgee bottoms were once cultivated, but their cultivation has been abandoned. The clearing and draining of large areas would greatly improve the healthfulness of the bottom lands, and when this is done they will undoubtedly be found the best soil in the county for corn, grass, and sugar cane. Cotton should also do well here if not attacked by the rust.

AGRICULTURAL METHODS.

Nearly all the implements used in this county are of the one-horse type, although the two-horse disk harrow and disk plow are used to some extent. Many fields are so full of stumps as to prohibit absolutely the use of two-horse machinery.

The rotation of crops is not very systematically practiced. The best farmers look upon cotton for one or two years, followed by corn, with cowpeas sown between the rows at the time of last cultivation, as the rotation best suited to their conditions.

Better farm animals, and more of them, the growing of more leguminous crops, such as cowpeas, and the careful husbanding and use of stable manure would not only lessen the expenditures for fertilizer and give better profits, but would also build up the productivity of the land, instead of barely maintaining it, as is now the case at best. Deeper plowing would also help to improve the land, especially where it is of the heavier types of soil.

In 1900 commercial fertilizers to the value of \$55,310 were applied to the land in Dodge County. The same year there was expended for all labor on farms the sum of \$56,450. Various kinds of artificial fertilizer are used. These are applied at the rate of 200 or 300 pounds to the acre for cotton, and somewhat less for corn. In the majority of cases some complete fertilizer is used. Cotton-seed meal and acid phosphate are also much employed. It would seem that the use of the meal should be more common, as it adds organic matter to the soil, in addition to mineral elements.

Some farmers make a practice of buying new cotton seed every four or five years. This seems to give fair results, but it is believed the necessity of buying would not exist if the planter would exercise more care in selecting seed of his own growing. There seems to be greater need of better seed corn than of better seed cotton.^a

Terracing and contour cultivation are very generally practiced, and are looked upon as necessary to prevent damage to the fields from washing.

AGRICULTURAL CONDITIONS.

Nearly one-third of the land in Dodge County is classed by the tax collector as "wild land"—a term used to indicate the river and stream bottoms and other areas that have never been cultivated. The greater part of such areas lies in the southern and southwestern parts of the county, near the Ocmulgee River. Considerable areas of the Norfolk sand along the Little Ocmulgee River and Sugar Creek are included in this classification, while extensive areas of the Norfolk sandy loam

^aSee Yearbook, 1902, U. S. Dept. of Agr., pp. 365 and 539, for discussion of selecting seed cotton and seed corn.

in some parts of the county are yet unimproved. In the eastern and northern parts of the county the greater proportion of all types of soil has been cleared of forest and is under cultivation.

The wild lands are assessed at \$1 or \$2 an acre, and other lands at from \$3 to \$5, about one-third of their average value. The best improved lands in the county would bring probably \$10 or \$15 an acre.

It is thus seen that the area is one of relatively low land values. The improvements on the farms, also, are generally inexpensive. The total value of all farm buildings in the county, according to the Twelfth Census, was \$288,030, and a conservative estimate of the value of the buildings on the average farm would place it between \$250 and \$500.

Much of the county has the appearance of a new, undeveloped country, and in general its appearance indicates at best a moderate degree of prosperity.

The farmhouses are small, usually containing but four or five rooms, and outside the towns very few are more than one story in height. As a rule they are unpainted, while the cabins of the poorer class are built of rough boards, with stick and mud chimneys. The best houses are almost invariably found on the Norfolk sandy loam, and judging from these the most prosperous communities are situated along the railroad in the northwestern part of the county, where the proportion of this type of soil is greatest.

Cotton is the staple product of Dodge County, and, as in other parts of the South, agriculture suffers from the too exclusive culture of this crop. The lands are for the most part light and sandy, and not at all suited to the improvident methods in use, under which little or no attention is given to the maintenance of productiveness by crop rotation. Use is rarely made of stable manure or green manuring crops. Cotton so monopolizes the efforts of many of the planters that they do not even produce the necessities that could easily be grown on the farm.

The credit system is generally practiced. Supplies of all kinds, fertilizers, implements, etc., are bought to be paid for when the cotton crop is made. To cover losses and interest the merchant charges a high price for his goods, so that these debts usually absorb a great part of the income from cotton, and the farmer starts the year at best free from debt, but with no surplus capital with which to carry on the operations of the succeeding year. The more intelligent planters realize that the system is unfortunate for the community, and express the situation by saying, "We are always one year behind time."

Aside from the "wild lands," there is more or less waste land on every farm, and at the present time very little more than one-third of the land in farms is actually under cultivation. Of this, probably one-half is cultivated by the owners themselves; the remainder is

handled under three systems of renting, viz, "cropping," share renting, and cash renting. Tenants of the first class are the most numerous. Under this system the landlord furnishes the land, mules, implements, and half the fertilizer, and receives half the cotton, after paying half the expense of ginning. A large proportion of the negroes work as "croppers." The profits of the landlord are not large, as he is bound, by a moral responsibility at least, to look after his tenants in case of sickness and to tide them over seasons of bad crops. On many farms operated in this way are stores from which the tenants obtain their supplies. These are seen also on farms rented in other ways.

When land is rented on "shares," the landlord provides only the land, and the tenant supplies the mules, implements, etc., the former receiving a stated amount of lint cotton, usually 1,000 pounds per "one-horse" farm (30 to 40 acres). These two systems are seen side by side, often both on the same plantation, and one-third of the land is rented under one or the other plan.

About 16 per cent of the cultivated area is rented for a definite cash rental, usually from \$1 to \$2 an acre. White tenants form the majority under this system. Wild lands are not fenced, and are used for turpentine orchards and as pasture.

There were 1,567 farms in the 230,000 acres in the county classed by the Twelfth Census as improved land, which would make the average size of farms about 150 acres. It should be remembered, however, that the census classes every holding of a tenant as a farm, and the average amount of land owned by the individual is much larger. Several men in the county own more than 1,000 acres each. As approximately only one-third of the land in the county is actually under cultivation, the average amount of tilled land per farm is much less than 150 acres, and is really nearer 50 acres. One and two horse farms are most common (30 to 80 acres), and a two-horse farm is looked upon as above the average. Recent sales of land have usually been of single "lots" of $202\frac{1}{2}$ acres, and it is probable that in time the average farm will be nearer this size.

Both white and colored labor is employed in this area, but the negroes are in the majority. Unskilled farm labor receives from \$9 to \$15 a month. Cotton is picked by "task," the average rate being 50 cents per 100 pounds of seed cotton. This labor is performed largely by the negroes, and all members of the family take part. For growing cotton and corn such labor is considered fairly efficient. As a rule, the negroes prefer "cropping" to working for wages, as it gives them more independence, so that at times it is difficult to obtain sufficient help. In the turpentine business the wages are higher, as it requires some knowledge and skill, but that industry is nearing its end.

As already stated, cotton and corn are the principal products of this area. In 1899 there were grown 29,244 acres of cotton, which produced 10,253 bales, and 33,627 acres of corn, which yielded 274,210 bushels. While the acreage of corn is the greater, as a source of income cotton is vastly more important. It is the chief and almost the only money crop. Very little more corn is grown than is necessary for home consumption. Other products are oat hay, peavine hay, sweet potatoes, Irish potatoes, watermelons, sugar cane for the manufacture of sirup, and orchard products. There is one peach orchard near Chester containing 34,000 trees, and a smaller one near Chauncey, where this fruit is successfully grown on a commercial scale. The Norfolk sandy loam is well adapted to peaches, and if means are used to control the scale, which has been very destructive in the past, it is probable that this industry will be found very profitable. There is only one dairy farm in the county. Most of the farmers pay little attention to producing milk and butter. The Norfolk sandy loam is well adapted to dairying. Alfalfa could probably be grown on it, and the long growing season gives opportunity to harvest at least two forage crops a year on the same land. Hence it would seem that dairying is worthy of more attention.

The live stock of the county, generally speaking, is of inferior grades. A good class of animals is as necessary as correct feeding in producing good beef or good butter and in doing it profitably, and the efforts of the progressive farmers should be made with a view to improving the conditions in this respect.

The production of sugar cane for the manufacture of sirup on a commercial scale is one of the possibilities of this area. At present it is made chiefly at home in kettles. Sugar cane grows well on all lands in the county, but does best on the Norfolk sandy loam. If drained, the bottoms would doubtless produce the heaviest yields, but the sirup could not compete in quality with the product of the upland soils.

The newness of this section has prevented, to a great extent, the working out of the adaptation of soils to crops, cotton and corn being grown indiscriminately on all soils. It is generally recognized that the Norfolk sandy loam is a stronger, more productive soil than the Norfolk sand, as is shown by the difference in the selling price of cultivated areas of these types. The Norfolk sandy loam brings from \$10 to \$15 an acre, and the Norfolk sand from \$5 to \$10 an acre. The latter type is looked upon as a good soil for watermelons, but few have ever been grown except for the local market. This soil is also well adapted to cantaloupes and early truck. There is such a large area of this type in Dodge County that it would be possible to go into this business on a large scale, and the subject is worthy of the attention of farmers and landowners.

Three railroads cross this area. A branch of the Southern system, running from Atlanta to Brunswick, enters the county at Empire and passes through Eastman, near the center of the county. The Wrightsville and Tennille Railroad crosses the northern part of the county and the Seaboard Air Line the southern part. Railroad facilities are not all that could be desired, as there are many points in the county more than 9 miles from any railroad, and over deep, sandy roads at that. A line from Dublin to Abbeville has been projected. This would cross the county from northeast to southwest and help develop a section as yet untouched by railroads. The Ocmulgee River is navigable from Hawkinsville on through the Altamaha to the sea, but owing to swampy bottoms and the absence of a shipping point very little of the products of Dodge County is shipped by this route.

Dirt roads traverse the area in every direction. Private or "settlement" roads reach points not touched by public roads, and in many instances are as well cared for as the latter. The great amount of sand in the county, so distributed that it is hardly possible to go anywhere without encountering areas of it, materially reduces the load which can be hauled.

Eastman is the largest town in the county, having a population in 1900 of 1,235, and most of the business of the county is done there. It has one oil mill and two cotton warehouses. Rhine, Milan, Chauncey, Younker, Chester, Empire, and other points also buy cotton and cotton seed. A small proportion of this crop is marketed outside the county. All these places have gins, and most of the cotton is ginned where sold.

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